SECTION VII.—WEATHER AND DATA FOR THE MONTH.

THE WEATHER OF THE MONTH.

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PRESSURE AND WINDS.

The distribution of the mean atmospheric pressure over the United States and Canada, and the prevailing direction of the winds are graphically shown on Chart VII, while the average values for the month at the several stations, with the departures from the normal, are shown in Tables I and III.

For December as a whole the barometric pressure averaged below the normal throughout the entire country, including the Canadian Provinces, except in the extreme northwest and in British Columbia where at a few points the averages were normal or slightly above. In the South Atlantic States, along the Pacific coast, and over the northern border States to the westward of the Great Lakes, the departures from normal were generally small, but they were quite pronounced in the central portions of the Rocky Mountain region, in New England, and the Canadian Provinces to the northeast, being greatest in the latter district.

The month opened with relatively low pressure in the northern border States, the Canadian Provinces, and to the west of the Rocky Mountains. Low pressure predominated generally for the next several days; but from about the middle of the first to the middle of the second decade—except for the occasional passage of a low area—the pressure was generally above the normal over most of the central, southern, and western portions of the country. At the same time relatively low pressure obtained in most northern districts. The remainder of the second and most of the third decade were marked by the passage across the country of several rather extensive and well-defined low pressure areas, and while each in turn was followed by relatively high pressure, the tendency was to readings below the average except in the more northern districts. During the last few days of the month high pressure areas overspread almost the entire country, and the month closed with barometer readings above the normal in practically all districts.

The distribution of the HIGHS and LOWS was generally favorable for westerly and southwesterly winds in the region of the Great Lakes and in the Ohio Valley. In the New England and Middle Atlantic States and the upper Mississippi and lower Missouri Valleys northerly and northwesterly winds were favored, while in the Gulf States southerly winds were frequent. Elsewhere variable winds prevailed.

TEMPERATURE.

December opened with moderate temperature in all districts, but there was a general increase thereafter, and the first decade was unusually warm in all districts east of the Rocky Mountains, specially on the 3d, in the Central and Southern States, and on the 4th and 5th in the eastern and northern districts. During the second decade the conditions were reversed, cold waves overspreading the central districts on the 11th and 20th, and in portions of the upper Mississippi and lower Missouri Valleys the temperatures daily averaged from 15 to 17 degrees below the normal. In the third decade low temperatures continued in the West and Northwest, a severe cold wave overspread the central districts on the 27th, and the month closed with cold weather over the greater part of the country. The temperature for the decade as a whole was above the average in the Gulf and South Atlantic States, but it was below throughout the North and West, particularly in Montana, where the averages were daily 25 degrees or more below the normal.

For the month as a whole the temperature was much lower than the normal in Montana, the western portions of the Dakotas, and in practically all central, northern, and western districts. The month was slightly warmer than the normal along the Gulf coast and in parts of the Atlantic States.

PRECIPITATION.

At the beginning of December fair weather prevailed over most of the country, except on the Pacific coast and in some northeastern sections. Rain occurred from the lower Ohio Valley northeastward on the 4th, and considerable rainy weather obtained from the 6th to the 10th. There was much stormy weather during the remainder of the month, with considerable snow in the Central and Northern States, the snow drifting badly in the upper Mississippi Valley and western Lake region. The month closed with fair weather over the greater part of the country.

For the month as a whole the precipitation was moderate to fairly heavy over most of the country east of the Mississippi River and also in Arkansas and Louisiana. Over much of the central valleys and Plains region the precipitation was in the form of snow, which melted slowly, thus being of maximum benefit to the soil. In the Plains States from Nebraska southward the month was dry, specially in central and western Texas, where large areas reported no measurable precipitation during the entire month. In most of Colorado and Wyoming, especially near the Continental Divide, the precipitation was rather heavy, also in much of Idaho and Montana, northern Utah, and in Arizona the falls were moderate to heavy. In the Pacific States, where the month is normally one of the wettest of the year, the precipitation was generally near or above the normal on the coast, while in the interior the falls were usually less than the average, but there was almost everywhere ample moisture for present needs.

SNOWFALL.

Snow was heavy in the Rocky Mountains and most northern districts. In portions of Oregon and Washington greater depths than usual were reported from the higher altitudes and similar conditions existed in Wyoming and surrounding States. The greatest depths reported were in the Cascade ranges where the total falls for the month in some cases exceeded 10 feet.

A fairly good covering of snow remained on the ground over the winter-grain region during much of the month, affording fair protection to wheat. Likewise the lower elevations in the mountain regions of the West were covered for considerable periods and much feeding of stock was necessary.

RELATIVE HUMIDITY.

December was generally drier than the average in the portions of the country to the eastward of the Great Plains, except over relatively small areas along the northern border, and in the central Gulf States. Over much of the Great Plains and Rocky Mountain regions, and the southern portion of the Pacific Coast States the relative humidity was above the average, elsewhere it was near the average.

GENERAL SUMMARY.

The first decade of the month was favorable for farm work, except in the extreme Northwestern States, but during the balance of the month field work was possible, as a rule, only in the more southern portions of the country, and dry and cold weather hindered plowing and seeding in those districts to some extent. Winter grains were well protected by snow during the greater part of the month in northern and northeastern districts, but in the Southwest cold weather did some injury to winter wheat, and the lack of precipitation was unfavorable for grain in Texas. There was considerable damage to the more tender truck crops by the cold weather of the middle and latter parts of the month in most Southern States and vegetation was unfavorably affected by dry weather in the Southwest. The unseasonably low temperature favored ice harvesting in the Northern States.

SEVERE LOCAL STORMS.

The following notes regarding severe storms have been extracted from the monthly reports of the several States.

Arkansas.—Moderate tornadoes were reported at Hardy and Stuttgart, Ark., on the 7th, by which 8 persons were injured and some property destroyed. A severe tornado, by which 17 persons were killed, a large number injured, and property valued at over $100,000 was destroyed, occurred on the 26th. It followed a nearly straight course from Leola, Grant County, Ark., to Des Arc, Prairie County, Ky., a distance of over 85 miles. The tornado was accompanied by heavy rainfall, extending to the eastern and northern borders of the State, 24-hour falls of from 3 to 5 inches occurring at a number of places. A slight tornado was also reported at Lake Village, Ky., on the 26th, in which one person was injured and some property destroyed.

Kentucky.—A tornado and hailstorm occurred in the vicinity of Calhoun, Ky., on the 4th. The course of the storm was nearly east. Two heavy hailstorms occurred, the first about 2:30 p. m., some of the hail being as large as partridge eggs, but irregular in shape, and the second about 3 p. m., with hailstones about one-fourth inch in diameter and almost perfectly round, which covered the ground. The tornado occurred during the first hailstorm and the funnel-shaped cloud seemed to come out of the southwest corner of the storm, about 3 miles south of Calhoun. The path of the tornado, as marked on the earth, varied between 7 and 300 yards in width, and was several miles in length. Several dwellings and a number of outbuildings were destroyed. No lives were lost, although there were several narrow escapes. A schoolhouse was completely destroyed, but the storm occurred during a recess period, when the pupils were on the playground, and they with the teacher sought shelter in a protecting cove, and thus escaped.

During a blinding snowstorm on the 22d, a residence near Danville, Ky., was struck by lightning and completely wrecked. The occupants were severely shocked.

Average accumulated departures for December, 1916.

Districts.	Temperature.			Precipitation.			Cloudiness.		Relative humidity.	
	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure for the current month.	Accumulated departure since Jan. 1.	General mean for the current month.	Departure from the normal.	General mean for the current month.	Departure from the normal.
	°F.	°F.	°F.	In.	In.	In.	0–10		P. ct.	
New England	28.8	−0.7	− 5.2	3.24	−0.10	− 4.90	5.7	−0.4	73	− 3
Middle Atlantic	34.8	−0.4	+ 7.2	3.51	+0.40	− 5.40	5.4	−0.4	69	− 6
South Atlantic	48.4	+1.3	+12.3	2.52	−1.10	−12.90	4.6	−0.3	73	− 5
Florida Peninsula	67.9	+2.0	+ 0.6	0.64	−1.40	−14.00	3.3	−1.4	79	− 3
East Gulf	50.7	+1.5	+10.4	4.90	+0.40	− 2.20	5.6	+0.1	77	0
West Gulf	49.8	+1.2	+14.4	1.13	−1.70	− 8.50	4.9	−0.3	69	+ 4
Ohio Valley and Tennessee	34.8	−1.8	+ 2.4	3.45	0.00	− 2.40	5.7	−0.6	73	− 3
Lower Lakes	27.1	−2.0	− 1.1	2.54	−0.40	− 3.70	7.4	−0.3	74	− 4
Upper Lakes	20.3	−4.1	− 1.6	2.16	+0.10	+ 2.00	6.4	−0.9	82	0
North Dakota	2.8	−9.0	−22.0	1.27	+0.60	+ 0.10	4.7	−0.7	85	+ 6
Upper Mississippi Valley	23.2	−4.1	+ 2.1	1.46	−0.30	− 1.90	5.2	−0.6	76	− 2
Missouri Valley	22.4	−4.5	+ 6.4	0.90	−0.20	− 6.00	4.8	−0.4	74	− 1
Northern slope	14.3	−9.4	−24.4	1.24	+0.40	+ 0.60	5.9	+0.7	74	+ 6
Middle slope	29.9	−3.0	+ 2.1	0.67	−0.10	− 4.00	4.3	+0.2	66	0
Southern slope	43.5	−1.0	+13.1	0.33	−0.50	− 5.20	3.3	−1.7	51	−15
Southern Plateau	38.4	−3.7	− 8.9	0.71	0.00	+ 1.00	2.9	−0.3	50	+ 7
Middle Plateau	26.8	−4.5	−14.6	0.89	−0.10	+ 0.50	5.4	+0.6	68	− 2
Northern Plateau	26.4	−5.6	−26.5	1.75	0.00	+ 0.70	7.8	+1.0	79	− 1
North Pacific	38.8	−3.4	−13.2	5.49	−2.20	−11.90	8.6	+0.8	87	+ 1
Middle Pacific	45.0	−3.6	− 9.4	4.41	0.00	− 1.80	5.1	−0.3	78	− 3
South Pacific	50.0	−3.0	− 9.2	4.00	+1.80	+ 6.60	4.6	+0.3	72	+ 3

WEATHER CONDITIONS ON THE NORTH ATLANTIC DURING DECEMBER, 1915.

The data presented are for December, 1915, and comparison and study of the same should be in connection with those appearing in the REVIEW for that month (cf. Chart III, Dec., 1915, XLIII–134). Chart IX (XLIV–153) shows for December, 1915, the averages of pressure, temperature, and the prevailing direction of the wind at 7 a. m., 75th meridian time (Greenwich mean noon), together with notes on the locations and courses of the more severe storms of the month.

PRESSURE.

The distribution of the average monthly pressure, as shown on Chart IX, presents few unusual features. The North Atlantic or Azores HIGH, with a crest of 30.15 inches, was practically normal as to position, extent, and intensity, while the continental HIGH was south of its usual position, the crest of 30.15 inches being central in southeastern Georgia.

A well-defined area of low pressure surrounded by an isobar of 29.5 inches, extended from the Irish coast to the thirty-seventh meridian, and from the fiftieth to the fifty-seventh parallel. The lowest average monthly pressure reading for any 5-degree square was 29.47 inches, and occurred in the square between latitude 50°–55° N. and longitudes 25°–30° W., where the lowest individual reading during the month was 28.60 inches, on the 30th, and the highest 30.22, on the 11th. The highest average monthly pressure was 30.16 inches, and occurred in the square that includes the Madeira Islands, where the daily readings ranged from 29.82 inches on the 27th, to 30.46 inches on the 13th. Over the eastern part of the ocean the gradients of mean monthly pressure between the upper and lower latitudes were somewhat steeper than usual, while over the western division they were practically normal.

The usual rapid winter pressure changes were in some cases very marked, and in one 5-degree square in the northeastern part of the ocean, the barometer rose from 28.70 inches, on the 8th, to 30.40 inches, on the 12th.